

Additionally, claims 2-4 are rejected under 35 U.S.C. §112, second paragraph for being incomplete for omitting essential structural cooperative relationships of elements. Claims 2-4 are amended. Withdrawal of the rejection under 35 U.S.C. §112, second paragraph is respectfully requested.

**II. The Claims Define Allowable Subject Matter**

The Office Action rejects claims 1, 2, 5 and 6 under 35 U.S.C. §102(b) as obvious over U.S. Patent No. 5,946,012 to Courian et al.; claim 3 is rejected under 35 U.S.C. §103(a) as unpatentable over Courian in view of U.S. Patent No. 5,069,733 to Nill et al.; claim 4 is rejected under 35 U.S.C. §103(a) as unpatentable over Courian in view of U.S. Patent No. 6,283,813 to Kaneko et al.; and claims 7-9 are rejected under 35 U.S.C. §103(a) as unpatentable over Courian in view of U.S. Patent No. 5,266,965 to Komai et al. These rejections are respectfully traversed.

Courian does not disclose the discharge quantity of the functional liquid is discharged from the nozzle and is regulated for each group, as claimed in claim 1.

The Office Action admits that Courian does not disclose the waveform of a single for controlling discharge of the functional liquid from said nozzles is regulated for each group, page 6, lines 3-5 of the Office Action. As such, Courian does not disclose the features of the claimed invention. Accordingly, withdrawal of the rejection of claims 1, 2, 5 and 6 as anticipated by Courian is respectfully requested.

The applied art does not disclose regulating, for each group, waveform of a single for controlling discharge of the functional liquid from the nozzles and discharging the liquid into pixels formed on a substrate, as claimed in claim 7.

Courian discloses in column 3, lines 17-19 that the purpose of grouping the heater registers is to prevent crosstalk which affects the amount of ink emitted upon energization of a nearby heater element. Similarly, in Komai, the piezo-electric elements are divided into a group of odd channels and a group of even channels to prevent the mutual interference.

In contrast, claim 7 of the present invention recites that each group contains nozzles located next to each other. Thus, this feature uses the fact that the nozzles positioned in proximity exhibit mutually similar discharge characteristics. The applied art does not teach, disclose or suggest such a feature. Accordingly, the features of claim 7 are not obvious from the teachings of Courian and Komai.

For at least the reasons outlined above, Applicants respectfully submit that the applied art does not disclose all the features recited in claims 1-12. Thus, the applied art does not anticipate nor render obvious the subject matter of claims 1-12. Withdrawal of the rejection of claims 1-12 under 35 U.S.C. §102 and §103 is respectfully solicited.

### **III. Conclusion**

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited. Should the Examiner believe that anything further is

desirable in order to place this application in even better condition for allowance, the Examiner is requested to contact the Applicants' representative at the telephone number listed below.

Respectfully submitted,



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Attachments:  
Appendix  
Petition for Extension of Time

Date: January 28, 2003

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<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
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## APPENDIX

## Changes to Claims:

The following is a marked-up version of the amended claims:

1.     ~~(Amended)~~ An ink jet recording apparatus comprising a plurality of nozzles for discharging a functional liquid,  
  
\_\_\_\_\_ wherein said plurality of nozzles is divided into a plurality of groups the number of which is fewer than the number of said nozzles, wherein each group contains nozzles located next to each other, and  
  
\_\_\_\_\_ wherein discharge quantity of said functional liquid discharged from said nozzles is ~~controlled group by~~ regulated for each group.
2.     ~~(Amended)~~ The ink jet recording apparatus according to claim 1, wherein said functional liquid is ink, ~~and that is usable to manufacture a color filter can be manufactured.~~
3.     ~~(Amended)~~ The ink jet recording apparatus according to claim 1, wherein said functional liquid is a solution of electroluminophor, ~~and that is usable to manufacture an EL element substrate can be manufactured.~~
4.     ~~(Amended)~~ The ink jet recording apparatus according to claim 1, wherein said functional liquid is an electrically conducting particle dispersion solution, ~~and that is usable to manufacture a substrate comprising a conducting wiring pattern can be manufactured.~~
7.     ~~(Amended)~~ A method for manufacturing a functional liquid applied substrate by an ink jet recording apparatus ~~comprising that has~~ a plurality of nozzles capable of discharging a functional liquid,  
  
       ~~wherein~~ said plurality of nozzles is divided into a plurality of groups the number ~~whereof of which~~ is fewer than number of said nozzles, each group contains nozzles located next to each other, comprising the steps of:

~~wherein regulating, for each group,~~ waveform of a signal for controlling  
discharge of said functional liquid from said nozzles ~~is regulated for each group,~~ and  
~~wherein discharging~~ said functional liquid ~~is discharged into~~ pixels formed  
on a substrate.